

Remarks

The Office Action rejected claims 1-5, 9-11, and 15-17. Claims 6-8, 12-14 and 18-20 are objected to as containing allowable subject matter. The Examiner is thanked for the telephone conference of September 29, 2004.

The instant invention relates to a system and methods for simple and robust baud-rate timing recovery. The present system includes a feed forward filter, decision logic, a feedback filter and a timing control detector. The timing functions for timing recovery are extracted only from filter coefficients of feed-forward and feedback filters. The relationship between the coefficients of feed-forward filter and the impulse response is derived under a zero-forcing condition while the relation between the coefficients of the feedback filter and the impulse response is known. Based on the relations, the timing error detector contains divider circuits that produce several timing functions, which can drive the sampling instances approximately at the peak point of the channel impulse response.

The Office Action rejected claims 1-5, 9-11, and 15-17 in view of the Takotari (WO 98/39873) reference. Regarding the claim amendments, all the independent claims 1, 9 and 15, have been amended to include the feature that "the timing error detector produces a signal that includes a ratio of the first and second inputs, wherein the signal is representative of the timing error...". Support for this amendment is found on pages 12-13 of the instant application, which relates to the description of Figures 7-9, that show three different embodiments of the timing error detector (120). In each of these embodiments at least one divider circuit (134, 140) is contained in the timing error detector.

The Takotari reference employs a conventional phase detector 332 and phase scanner 340 in what is interpreted from the Office Action to be a "timing error detector". These elements of Takotari however do not contain divider circuits that could provide a "ratio output signal" from the plurality of input signals as now recited. Takotari is silent as to the signal processing that occurs in the phase detector 332 and the phase scanner 340. Therefore Takotari does not contain nor render obvious this claimed feature.

As discussed in the telephone conference of Sept 29, the present claim amendments are directed toward the subject matter of the allowable subject matter contained in the formulas of claims 6-8. Each formula contains an output term that is a "ratio" of the two input signals. Therefore Applicants submit that the above amendments now define over Takotari, as Takotari does not produce the signals as now claimed.

In light of the amendments and remarks, Applicants respectfully submit that the pending claims are allowable over the prior art of record and anticipate a Notice of Allowance. The Examiner is encouraged to contact the undersigned Agent if any issues remain.

Respectfully submitted,
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